UPS-ST12 / 24 / 48

UPSPro™ Backup Power System

- Wireless Base Stations
- Surveillance Cameras
- Remote Gate Control
- Electric Fence
- Up to 192W loads

Congratulations! on your purchase of the UPSPro™ outdoor backup power system. Please take a moment to review this Qwik Install Guide before assembly or battery installation.

STOP

DANGER! Avoid Powerlines!
You Can Be Killed!

When following the instructions in this guide take extreme care to avoid contact with overhead power lines, lights and power circuits. Contact with power lines, lights or power circuits may be fatal. We recommend to install no closer than 20 feet to any power lines.

Safety: For your own protection, follow these safety rules.

- **Perform as many functions as possible on the ground**
- **Do not attempt to install on a rainy, windy or snowy day or if there is ice or snow accumulation at the install site or if the site is wet.**
- **Make sure there are no people, pets, etc. below when you are working on a roof or ladder.**

Recommended Tools: Phillips Screwdriver, 13mm and 10mm Open End Wrench, 8mm nut driver, Flat Blade Screwdriv-

Please help preserve the environment and return used batteries to an authorized depot

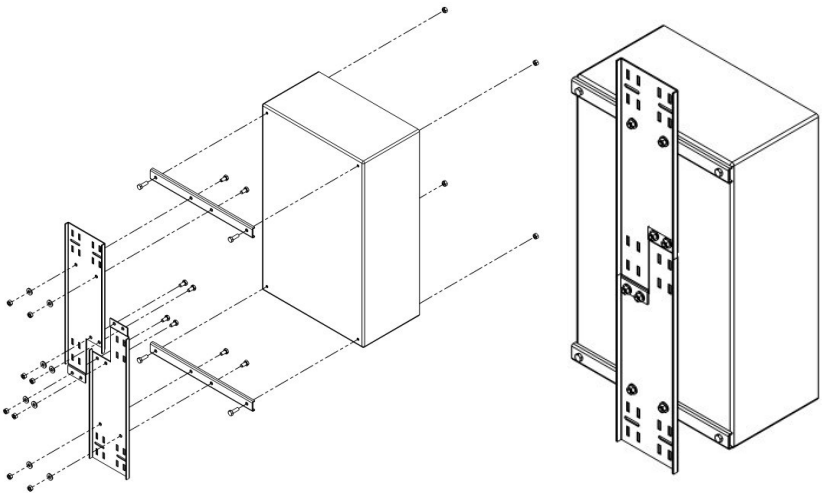
Qwik Install

STEP 1: Add Grounding Wire Between Door and Enclosure: Remove plastic covers on copper studs on inside of door and inside of enclosure. Add jumper wire between 2 copper studs and use copper washers and nuts to secure.

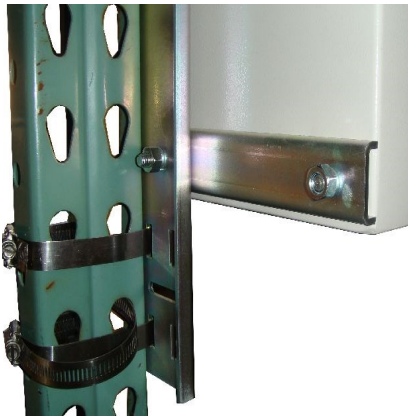
STEP 2: Add wire feedthrus into the bottom connector plate. Attach the connector plate to the bottom of the enclosure using self tapping screws provided.

STEP 3: Install hole plug in drain hole in bottom right corner of the enclosure.

STEP 4: If pole mounting the enclosure, assemble the pole mount kit to the back of the enclosure and mount the enclosure to a pole using the 6 hose clamps provided. The enclosure can also be wall mounted using the 4 holes in the back of the enclosure.



STEP 5: Insert the battery platform in the bottom of the enclosure. The battery platform has cutouts so wires can be routed under the battery as needed.



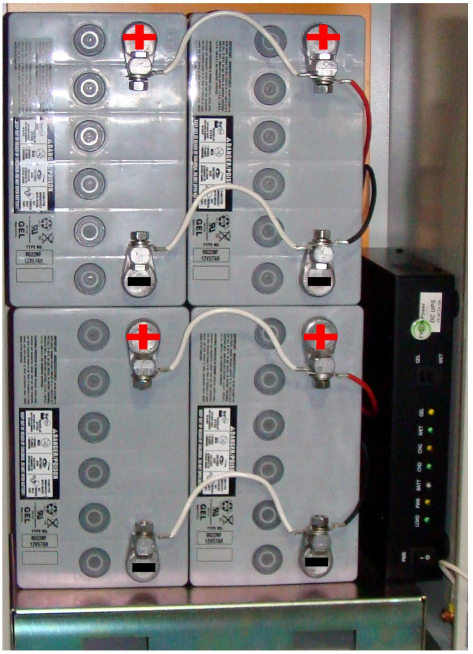
STEP 6: Mount any extra equipment that will reside inside the enclosure. Equipment can be mounted to removable backplate or to a plate mounted to the door rails.

STEP 7: Install the batteries in the enclosure. If using multiple batteries, connect in parallel for 12V output or connect in series for 24V output.

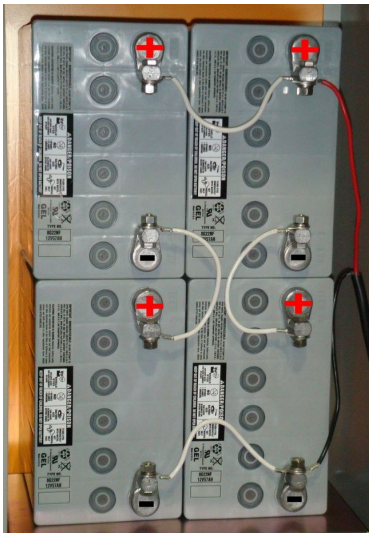
12V 200Ah battery configuration is shown here.

For 12V 100Ah two batteries are connected in parallel with Plus(+) connected to Plus(+) and Minus(-) connected to Minus(-).

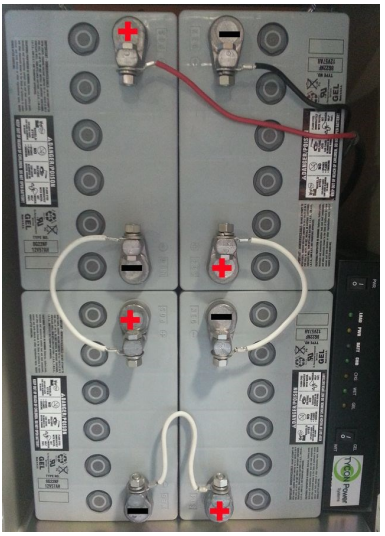
For 12V 200Ah the 100Ah configuration is doubled with separate battery connection wires to controller.



24V two battery and 24V and 48V four battery configurations are shown below: Batteries are connected in series, with Plus(+) connected to Minus(-).



24VDC Four Battery



48VDC Four Battery

STEP 8: If batteries are installed on their side make sure to apply an insulator to the top of the battery terminal to prevent the battery terminals from shorting to the metal enclosure in case the battery shifts inside the enclosure during an earthquake.

STEP 9: Set the proper voltage on the AC input of the controller by removing the metal tab and then switching the input voltage to 120VAC or 240VAC depending on your source voltage. Be sure to replace the metal tab to ensure that somebody doesn't accidentally switch the voltage as this will damage the controller.

STEP 10: Connect the battery cables to the controller , then to the battery. Be sure to observe proper polarity. Black wire connects to battery negative terminal and BATTERY(-) terminal on the controller.

STEP 11: When a battery is connected properly the BATT LED will be green. Make sure that the Battery Type is selected correctly and never change the battery type during charging or this could damage the controller. Use GEL for GEL or AGM batteries. Use WET for standard lead acid wet cells. Tycon recommends using only GEL or AGM batteries for best performance.

The controller has battery overdischarge protection to disconnect the load if the battery voltage (charge) is too low. The LOAD LED will be on when the battery charge is within safe limits and the LOAD output is turned on.

LED Indicators

LOAD (Load Power is Turned On = Green)
PWR (AC Power On = Yellow)
BATT (Battery is Connected = Green)
CHD (Battery is Fully Charged = Green)
CHG (Battery is Charging = Yellow)
WET / GEL – Switch is positioned to WET(Green) or GEL (Yellow)

STEP 12: Switch off controller and connect AC to the controller. Be sure to follow local regulations for outdoor 120/240VAC connections.

STEP 13: Connect the load to the controller LOAD terminals. Be sure to observe proper polarity. Switch on the controller to activate the charging.

STEP 14: Plug or Tighten all wire feedthrus. If they don't tighten on a small diameter wire, you can wrap some electrical tape around the wire in the seal area to increase its diameter and make a better seal. The enclosure needs some small amount of venting so be sure NOT to seal all holes and feedthrus with silicon.

STEP 15: Make sure lid gasket is clean and free from any particles, then carefully close the cover, making sure that wires are clear of the seam and hinge area. Use the special key to close the two cover locks.

TECH CORNER

Additional Information you may find useful

1. **CONTROLLER:** The controller turns off power to the load at 10.7V for the 12V model and 21.5 for the 24V model and 40V for the 48V model. It reconnects when the battery reaches 12.6V for the 12V model and 25.2V for the 24V model and 51V for the 48V model. This protects battery from overdischarge and increases battery life and performance. Note: The load will turn on immediately as soon as AC power is restored.

2. CAPACITY: The UPSPro UPS-ST12 is rated at 144W load output.

SPECIFICATIONS

Subject to change without notice

	UPS-ST12	UPS-ST24	UPS-ST48
Load Voltage	12V +/-0.5	24V +/- 0.5	48V +/- 0.5
Max Load	12A (144W)	8A (192W)	4A (192W)
Min Load	1A	1A	1A
Capacity	1 battery 51Ah 600VA 2 battery 102Ah 1200VA 4 battery 204Ah 2400VA	2 battery 51Ah 1200VA 4 battery 102Ah 2400VA	4 battery 51Ah 2400VA
Battery Type	Valve Regulated Sealed Lead Acid / GEL		
Battery Life	5 Years		
Charge Voltage	WET Equalize = 14.6V, Float = 13.2V GEL Equalize = 14.2V, Float = 13.5V	WET Equalize = 28.8V, Float = 26.4V GEL Equalize = 28.4V, Float = 27V	WET Equalize = 58V, Float = 53V GEL Equalize = 56.8V, Float = 54V
Over-discharge protection	10.7V Load Off 12.6V Load On	21.5V Load Off 25.2V Load On	40V Load Off 51V Load On
VAC +/- 10%	Selector Switch 120VAC / 240VAC , 50/60Hz		
Input Current	3.5A @ 115VAC / 1.8A @ 240VAC		
Enclosure Type	Powder Coat Steel		
Operating Temp	-30°C to +60°C		

The UPS-ST24 and UPS-ST48 are rated at 192W load output.

3. VENTING: The enclosure is vented thru the wire feedthrus and various hole plugs in the bottom of the enclosure. Don't make these airtight with silicon

4. BATTERY MAINTENANCE: The batteries used in the UPSPro systems don't require any maintenance. They should last up to 5 years in normal use. **Note: Never store batteries for any length of time in a discharged state or it will kill the battery.**

5. BATTERY OVERDISCHARGE: We highly recommend hooking all equipment loads to the controller voltage output. This output will disconnect the load if the battery voltage drops below the set voltage and this will protect the battery from over-discharge. If batteries get completely discharged because the equipment was connected directly to the battery, you will reduce the battery life. Discharged batteries will freeze at very low temperatures.

6. ACCESSORIES: Tycon also offers a variety of voltage conversion products to meet almost any need. Just visit tyconpower.com for more info.

Compatible Solar Panel Kits

Tycon Power Systems Solar Panel kits come with High Performance solar panels, battery charge controller, side of pole mounts and outdoor rated connection cabling. Solar panels have a 25 year output warranty. Pole mounts and panels are designed for wind loads to 90MPH. Note: Solar panel kits are only available for 12V and 24V Battery Systems.

TPSKxx-85W— xx choose **12** or **24**. 85W Solar Panel, Controller, Pole Mount, Cable

TPSKxx-120W— xx choose **12** or **24**. 120W Solar Panel, Controller, Pole Mount, Cable

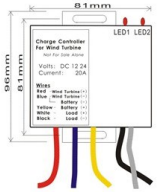
TPSKxx-240W— xx choose **12** or **24**. 240W Solar Panel, Controller, Pole Mount, Cable

Solar Kits	6 Hours Peak Sun	3 Hours Peak Sun
TPSKxx-85W	20W continuous	10W continuous
TPSKxx-120W	30W continuous	15W continuous
TPSKxx-240W	60W continuous	30W continuous

Compatible Wind Turbine

TPW-400DT-12/24 400W 12V or 24V Autovoltage select Wind Turbine

- Includes controller
- Good low wind performance
- Self braking in high wind
- 80MPH survivability
- Sealed and maintenance free



Limited Warranty

The UPSPro™ products are supplied with a limited 24 month warranty which covers material and workmanship defects. This warranty does not cover the following:

- Parts requiring replacement due to improper installation, misuse, poor site conditions, faulty power, etc.
- Lightning or weather damage.
- Physical damage to the external & internal parts.
- Products that have been opened, altered, or defaced.
- Water damage for units that were not mounted according to user manual.
- Usage other than in accordance with instructions and the normal intended use.